

RECEIVED NOV 6 1982



United States
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Washington, D.C.
20250

NOV 4 1982

SUBJECT: Mexico-U.S. Screwworm Commission Meeting

TO: H. C. Mussman
Administrator, APHIS

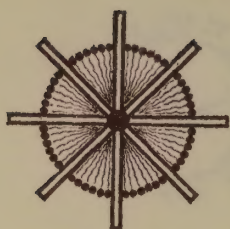
Thank you for your memorandum of October 13 inviting ARS participation in the Mexico-U.S. Screwworm Commission meeting in Chihuahua City on November 19, 1982. Regrettably, previously scheduled commitments preclude my participation; however, I am pleased to advise you that Dr. O. H. Graham will represent ARS at the meeting. Dr. Graham will be prepared to discuss the ARS response to the Lincoln-Eden Study of the Screwworm Eradication Program and other technical matters related to research in support of screwworm eradication.

John R. Victor

fn T. B. KINNEY, JR.
Administrator

cc:

✓ O. H. Graham



CENTRO DE INVESTIGACIONES ECOLOGICAS DEL SURESTE
Organismo Descentralizado de Interés Público

AREA AGROPECUARIA

Tapachula, Chis. Noviembre 5 de 1982.

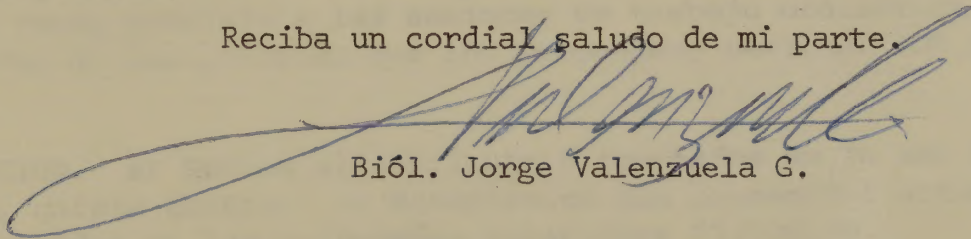
Dr. O.H. Graham
USDA - ARS
P.O. Box 986
Mission, Texas.
78572

Estimado Dr. Graham:

Como posiblemente ya esté Usted enterado, el próximo Congreso Nacional de Entomología se realizará en Tapachula. Durante dicho Congreso estamos organizando un Simposium sobre "Comportamiento de Insectos". Los trabajos presentados contarían con 20-30 minutos para su exposición y serían publicados en la Memoria del Congreso. ¿Estaría Usted o alguien de su grupo interesado en participar en este Simposium con una ponencia sobre el comportamiento de la mosca del gusano barrenador? Sinceramente deseamos que pueda Usted asistir, pues nos interesa mucho poder contar con su participación.

En caso afirmativo por favor hágamelo saber a la mayor brevedad posible.

Reciba un cordial saludo de mi parte.


Biól. Jorge Valenzuela G.

P.S. Estoy enviando también una invitación al laboratorio de ARS en Tuxtla.



~~CUAUHTEMOC No. 18~~
~~SAN CRISTOBAL DE LAS CASAS, CHIAPAS~~
~~TEL. 1-88~~



C O N V O C A T O R I A

XVIII CONGRESO NACIONAL DE ENTOMOLOGIA

La Sociedad Mexicana de Entomología (SME) invita a sus miembros, sociedades científicas afines y personas interesadas en problemas y estudios entomológicos a participar en el XVIII Congreso Nacional de Entomología que se efectuará del 17 al 20 de abril de 1983 en el Hotel Kamico de la Ciudad de Tapachula, Chiapas, con la colaboración del Programa Moscamed (DGSV, SARH), el Instituto Nacional de Investigaciones Agrícolas (SARH) el Centro de Investigaciones Ecológicas del Sureste y el Area de Ciencias Agrícolas de la Universidad Autónoma de Chiapas.

INSCRIPCIONES. La fecha límite para la inscripción de trabajos será el 15 de enero de 1983, estos deberán ser originales y de calidad científica. Cada socio tiene derecho a solicitar la inscripción de dos trabajos y dos carteles (posters), la Comisión de Programa se reserva el derecho de admisión de los mismos.

SECCIONES. A) Entomología Económica (manejo de plagas agrícolas); B) Biología, Ecología y Comportamiento; C) Sistemática y Morfología; D) Fisiología y Toxicología; E) Entomología Forestal; F) Entomología Médica, y G) Acarología y Aracnología.

Existiendo dos modalidades para la exposición:

- I.- Exposiciones de 15 minutos, incluyendo discusión y comentarios.
- II.- Exposiciones tipo "poster", disponiendo de 2 m² para incluir texto conciso y claro acompañado de ilustraciones, fotografías o muestras.

Al inscribir el título del trabajo se deberá indicar la sección y modalidad preferida para su presentación, institución y acompañarlo con un resumen preparado según las normas que se anexan. Unicamente podrán emplearse transparencias montadas en marcos de 5X5 cm durante las exposiciones, o micas para retroproyector.

Se invita a los socios para que propongan MESAS REDONDAS O SIMPOSIA sobre aspectos entomológicos concretos, en los cuales participen cuando menos 10 ponentes. Dichos eventos se programarán en forma paralela a las sesiones de trabajo ordinarias y su organización será responsabilidad de las personas que los propongan, contando con el apoyo logístico de la SME.

CUOTAS DE INSCRIPCION. a) Socios al corriente e invitados de la SME \$600.00, b) Esposas acompañantes, gafete gratis; c) Estudiantes con credencial actualizada \$300.00 d) Personas no incluidas en las categorías anteriores \$1,500.00.

TODA CORRESPONDENCIA RELATIVA A LA PRESENTE CONVOCATORIA DEBERA ENVIARSE A:

XVIII Congreso Nacional de Entomología
Sociedad Mexicana de Entomología
Apdo. Postal No. 7-1080
Delegación Cuauhtémoc
06700 México, D.F.

Pedro Reyes-Castillo
Presidente

NORMAS PARA ELABORAR RESUMENES

- 1) Podrán tratar de cualquier tema relacionado con insectos, ácaros o arácnidos.
- 2) Su extensión será de 350 palabras en promedio.
- 3) Deberá indicarse, en el margen superior, en cuál sección se desea incluir: A) Entomología económica, B) Biología, Ecología y Comportamiento, C) Sistemática y Morfología, D) Fisiología y Toxicología, E) Entomología Forestal, F) Entomología Médica y Veterinaria, G) Acarología o en algún simposio particular que haya sido programado.
- 4) El título deberá ser conciso, y si incluye el nombre común o científico de un taxón, será preciso agregar entre paréntesis el orden, la familia o los niveles taxonómicos superiores al referido en el trabajo.
- 5) Después del título se agregará el nombre o nombres de los autores, la institución que los patrocina y la entidad federativa.
- 6) El resumen constará de una breve introducción con el objetivo del trabajo, una explicación escueta de la metodología utilizada, la síntesis de los resultados obtenidos y las conclusiones más relevantes.
- 7) No se aceptarán resúmenes cuyo contenido sea tan general o superficial que pueda ser encontrado en cualquier texto de la especialidad.
- 8) Las revisiones bibliográficas deberán enfocarse como síntesis actualizadas, comentadas o discutidas, de tal manera que ofrezcan alguna conclusión.
- 9) En caso de citar productos químicos (insecticidas, atrayentes, etc.) será necesario agregar entre paréntesis el nombre químico de los compuestos.

Los resúmenes que no satisfagan estos requisitos no serán incluidos en la memoria correspondiente.



CONCURSO FOTOGRAFICO "SALON DEL INSECTO"

Los organizadores del X SALON DEL INSECTO nombrados por la Mesa Directiva de la Sociedad Mexicana de Entomología (SME) hacen una cordial invitación a los miembros de la Sociedad, aficionados a la fotografía, para que participen en el mencionado Salón del Insecto que se celebrará como parte del XVIII CONGRESO NACIONAL DE ENTOMOLOGIA en la Ciudad de Tapachula, Chiapas del 17 al 20 - de abril de 1983.

Deseamos recordar a ustedes algunos de los elementos que en anteriores concursos hemos tomado en cuenta para calificar las fotografías de insectos, con objeto de que se tomen en consideración: motivo (insecto en su ambiente natural), nitidez, contraste, composición, oportunidad y dificultad de la toma.

BASES DEL CONCURSO

- 1) Podrán participar sólo fotografías inéditas tomadas por fotógrafos No profesionales, sean miembros ó no de la SME.
- 2) Se aceptarán hasta 3 fotografías a color en papel (8X10") montadas en cartulina y/o hasta 6 transparencias (10 si es una secuencia).
- 3) La fecha límite para entrega de fotografías es el 17 de abril de 1983.
- 4) Se premiarán los dos primeros lugares de cada categoría.
- 5) Para el envío del material fotográfico y mayores informes dirigirse a:

Dr. Raúl MacGregor Loaeza
Instituto de Biología, UNAM
Apdo. Postal 70-153
04510 México, D.F.
Tel.- 550-52-15 Ext. 4907



CONCURSO DE CARTEL

La Sociedad Mexicana de Entomología (SME) convoca a su segundo concurso de cartel con motivo del XVIII Congreso Nacional de Entomología que se realizará en la Ciudad de Tapachula, Chis. el próximo mes de abril de 1983.

BASES:

- 1.- El concurso está abierto exclusivamente a miembros de SME al corriente de sus cuotas.
- 2.- El tema es libre, debe referirse a insectos o artrópodos afines (arácnidos, ácaros, etc.) y de absoluta originalidad.
- 3.- Cada concursante sólo podrá presentar un cartel.
- 4.- El tamaño del cartel será de 40X50 cm debiendo ser presentado en cartulina y dos colores (texto en un color y tema en otro color). El color de la cartulina será el fondo del cartel, pudiendo ser de color distinto al utilizado en el texto y tema.
- 5.- Todo cartel debe incluir el texto siguiente:

XVIII Congreso Nacional de Entomología
17-20 de Abril de 1983
Tapachula, Chiapas
- 6.- Todo cartel deberá incluir el escudo de la SME.
- 7.- Los ganadores del primer concurso del cartel no podrán presentar carteles por esta ocasión.
- 8.- La fecha límite de aceptación de trabajos es el 15 de diciembre de 1982.
- 9.- Los carteles presentados son propiedad de SME.

PREMIOS.

- 1.- El cartel ganador será publicado y distribuido ampliamente, con el crédito correspondiente y se utilizará como carátula del Programa del XVIII Congreso Nacional de Entomología.
- 2.- Habrá un premio único de \$10,000.00 (diez mil pesos 00/100) contra la presentación de recibo de honorarios.
- 3.- Se otorgará diploma de reconocimiento al cartel ganador y a los trabajos más sobresalientes.
- 4.- La decisión del jurado será inapelable.

Enviar carteles:

XVIII Congreso Nacional de Entomología
Sociedad Mexicana de Entomología
Apartado Postal 7-1080
06700 México, D.F.

A t e n t a m e n t e

La Mesa Directiva



C I R C U L A R

La Sociedad Mexicana de Entomología ha adquirido un total de 50 subscripciones para obtener los dos volúmenes de la obra "Social Insects in the Tropics" que reúne los trabajos presentados durante el simposio sobre insectos sociales en el trópico realizado en Cooyoc, Mor. en octubre de 1980. Evento organizado por la Unión Internacional de Insectos sociales y nuestra Sociedad.

El precio normal de subscripción es de U.S.\$50.00 (Cincuenta dólares) por los dos volúmenes, o su equivalente en moneda nacional (M.N.\$3,500.00).

El precio especial para socios al corriente de sus cuotas es de M.N.\$2,000.00 (Dos mil pesos 00/100), hasta agotar las 50 subscripciones. A la recepción de su pago, se le enviará el primer volumen y en diciembre o enero próximos el volumen II.

Envíe cheque o giro postal (No enviar giro telegráfico) a nombre de:

Salvador Romero Parra
Sociedad Mexicana de Entomología
Apartado Postal 7-1080
México 06700, D.F.

Oferta limitada a socios mexicanos o residentes en México



COMISION MEXICO-AMERICANA PARA LA ERRADICACION DEL GUSANO BARRENADOR

LA ENERGIA ATOMICA AL SERVICIO DEL GANADERO

Noviembre 12, 1982.

Reporte de la prueba de SWASS en Altamirano, Gro. (Oct.- Nov. 1982) por D.E. Hopkins.

El concepto de la prueba es como sigue: se establecerían índices de las densidades de dos poblaciones geográficamente cercanas de gusano barrenador según las colecciones de adultos en trampas, de masas de huevecillos en heridas de animales infestados, y en reportes de casos en ganado. Después de que los índices sean establecidos, una de las poblaciones se trataría con SWASS, y las frecuencias de colecciones continuas de las dos poblaciones se compararían para ver si alguna disminuye la densidad de la población tratada, (como se indica en las frecuencias de colecciones) se podrían atribuir al SWASS — la otra población se usaría como testigo para indicar si cualquier disminución se debe a las condiciones naturales.

Se eligieron para el sitio de la prueba dos áreas geográficas cercanas a Altamirano Guerrero, el Valle de Huetamo en Michoacán y el Valle de Arcelia Gro., que son designadas en este reporte como ZONA A y B, respectivamente. Los centros geográficamente de las áreas son separados aproximadamente por 60 kms. (ver el mapa anexo). Las zonas son similares en topografía, agricultura, ganado y vegetación; no obstante, en la zona B hay un sistema de canales para riego bien desarrollado y actualmente muchos de los canales contienen agua — por lo que hay un grado muy alto de agua disponible para los animales en esta zona.

Reports on the test of SWASS at Altamirano Gro. (Oct.- Nov. 1982) by D. E. Hopkins.

The concept of the test is as follows: indexes to the densities of two geographically proximate populations of screwworms would be established by frequencies of systematic collections of adults from traps, egg masses from animal - wounds (infested), and reports of cases in livestock; after indexes would become established one of the populations would be treated with SWASS, and frequencies of continuing collections from the two populations would be compared to see if any percent lowering of the density (as indicated by indexes according to frequencies of collection) of the treated population could be attributed to SWASS — frequencies of collections from the untreated population would serve as a control to indicate if changes in density might be caused naturally.

Two geographical areas near Altamirano Guerrero, the Huetamo Valley in Mich., and the Arcelia Valley in Gro. designated in this report ZONES A and B, respectively, were chosen as the test-site. The approximate geographical centers of the areas are 60 km. apart (see accompanying map). The zones are similar in topography, cultivation, and vegetation; however, within Zone B there is a well developed system of canales for irrigation and presently many of the canals contain water — thus, surface water is to a very marked degree more available to animal life in this zone.

Las colecciones diarias de adultos, masas y reportes de casos se iniciaron el día 18 de octubre de 1982 con 15 trampas y 5 corrales de borregos infestados colocados en la parte central de cada zona (ver mapa anexo), y de inspecciones de ganado dentro de todas las zonas. Las colecciones se continúan llevando a cabo.

Dos veces por semana se dispersa SWASS de 0.18 kilos por km^2 por semana (1 lb. por milla cuadrada por semana) en la Zona B están planeadas para las 3 semanas siguientes con fecha de iniciación el 7-XI-82.

Los datos hasta el día 8-XI-82 se indican en el cuadro I para adultos y masas.

Los datos de pre-tratamiento que se muestran el cuadro I, indican que existen infestaciones relativamente moderadas en cada zona y que la mayor densidad está en la Zona B. También, los datos indican que habrán variaciones en las cantidades que van a ser colectadas en las semanas siguientes, por ejemplo, en la Zona A, durante las 3 semanas anteriores al tratamiento hubo una variación de 534% en las colectas de OD ($219 \div 41 = 5.34$ ó 534%) y una de 442% en las moscas colectadas en la Zona B, las variaciones fueron de 1000% en las hembras de GBG, 221% por OD y 238% en las masas, sin embargo, las variaciones no quieren decir, necesariamente que los datos por recibirse no van a ser datos definitivos, lo que quiere decir, es que se debería de hacer un análisis muy crítico y comprensivo. Si por ejemplo durante las dispersiones de SWASS, los colectados en la Zona B se bajaran a un 50% por abajo de cualquier nivel anterior, permanecerían en el mismo nivel o abajo durante el resto del período del tratamiento, y posteriormente regresarán a los niveles mínimos de los del pre-tratamiento dentro de una o dos semanas después del tratamiento y las colecciones en la Zona A quedarán a un nivel igual o más alto de los mínimos anteriores.

Daily collections of adults, masses, and case-reports began 18-X-1982 from 15 traps and 5 corrales of wounded sheep distributed in the central part of each zone (see accompanying map), and from inspection of livestock throughout each zone. The collections are continuing.

Twice weekly dispersion of SWASS of 0.18 kilos per km^2 per week (1 lb. /mi² 1 week) in Zone B are planned for 3 continuous weeks beginning 7-XI-82.

Data to 8-XI-82 are shown in table I for adults and masses.

The pre-treatment data shown in Table I indicate that, relatively, there are moderate infestations in each zone and that the denser one is in Zone B. Also, the data indicate that variations in numbers to be collected in the coming weeks are expected - for example, in Zone A collections (in the 3 weeks prior to treatment) of OD varied 534% ($219 \div 41 = 5.34$ or 534%) from week to week and those of the collections of masses 442%. In Zone B the variations were 1000% for females, 221% for OD, and 238% for masses. However, the variations do not mean that future-data will not be definitive; what they mean is that a very critical and comprehensive analysis of the data should be made; if for example: during the dispersions of SWASS the collections in Zone B fall 50% below any previous level, remain at or below that level during the remainder of the treatment, then return to or above pre-treatment minimums within a week of two after treatments cease, and collections during the same period in Zone A remain at or above previous minimums, THEN indications would be definite that SWASS lowered the density of the population in Zone B.

Es una necesidad práctica esperar hasta que todos los datos sean colectados para determinar como se deberían analizar.

It is a practical necessity to wait until all of the data are accumulated before determining how they should be analyzed.

D.E. Hopkins by RCF

D. E. Hopkins
Supvry. Biotechnician



COMISION MEXICO-AMERICANA PARA LA ERRADICACION DEL GUSANO BARRENADOR

LA ENERGIA ATOMICA AL SERVICIO DEL GANADERO

RECEIVED NOV 24 1982

Noviembre 12, 1982

COMENTARIOS ACERCA DE LA PRUEBA DE SWASS EN ALTAMIRANO, GRO. (OCT-NOV. 1982) POR D.E. HOPKINS

Actualmente en Altamirano, así como con la mayor parte de las pruebas de campo de gusano barrenador del ganado, no se cumple con todos los aspectos que constituyen una prueba clásica.

A final de cuentas en una prueba de este tipo es importante que la población testigo y la del tratamiento tengan las mismas condiciones para la crianza del GBB (por ejemplo, parámetros ambientales y el manejo del ganado); es igualmente importante que se usen métodos standards para las colectas de adultos, masas, y reportes de casos, porque las frecuencias de las colecciones son los indicadores de la densidad de las poblaciones. También es importante que haya bastantes y consistentes colectas de los indicadores de densidad que indiquen claramente si hay o no cambios en los porcentajes de las cantidades, lo que va a dar respuestas verdaderas de los cambios en densidades.

También se sugiere que toda prueba sea repetible, ya que de no ser posible la repetición, los datos resultantes van a servir como demostraciones.

Se encontraron varios problemas en las rutinas de las pruebas. Las áreas testigos y de prueba son similares. De los datos del cuadro # 1 del reporte adjunto se deduce que la Zona B que se va a tratar, tiene mayor índice de reproducción, o que la manera de probar es más eficiente ahí, es decir que más adultos y masas fueron colectadas en la Zona B.

COMMENTS ON THE TEST OF SWASS AT ALTAMIRANO GRO. (OCT. NOV. 1982) BY D.E. HOPKINS.

At present in Altamirano, as in most field tests of screwworms, all of the important aspects that constitute a classic test are not met.

In a test of this type it is ultimately important that control-and treated-populations be subjected, at the same times, to like influences that affect densities of populations of screwworms (weather, animal- husbandry practices, etc.) it is equally important that standard methods be used to collect adults, masses, and case-reports because the frequencies of collection are the indicators of the densities of the populations. Also, it is important that frequencies of collections of those indicators of density be numerous and consistent enough so that percent differences in numbers collected would make any change in density markedly (even dramatically) apparent.

Also (at least philosophically), tests are repeatable. If repetitions aren't possible, then actions that result in data are observations or demonstrations.

Several problems have been encountered in the test routines. The control - and test-areas are similar, but it is obvious from the data (Table I of accompanying report) that Zone B (to be treated) either has a higher reproduction rate or that sampling is more efficient in that area - i.e. more adults and masses have been collected in Zone B.

Los métodos de colección han sido difíciles de lograr, y no se han usado rutinas estrictas en cuanto al uso del atrayente en las trampas, porque no había atrayente disponible, también hubo evidencia de depredación por hormigas. Estos problemas ya están controlados actualmente.

No se han continuado las rutinas de infestación y tratamiento de heridas, debido a que no ha habido larva para infestar rutinariamente. Sin embargo, generalmente hubo una práctica consistente del manejo de las heridas en ambas zonas.

Las cantidades de adultos colectados fueron relativamente bajas, y es posible que no sea una base confiable para análisis.

A pesar de todos los problemas para lograr un buen control sobre los elementos adecuados de pruebas, es probable que se desarrollen datos suficientes que permitan al menos contar con un juicio práctico de la eficacia del SWASS, especialmente si hay un efecto muy marcado de la eficacia.

Standard methods of collection have been difficult to achieve i.e. strict routines of the use of attractant in traps have not been used because an ample supply of attractant was not available (since corrected). Also predation by ants (since controlled) was evident.

Routines of infesting and treating wounds have not been followed because larvae for infesting have not been available on a routine basis. (However, there has generally been a consistent pattern of management of wounds between Zones "A" and "B").

The number of adults collected has been relatively low and may not present a reliable basis for analysis.

In spite of the apparent difficulties in achieving good control over the elements of proper testing, probably sufficient data will be developed to permit at least a practical judgement of the effectiveness SWASS, especially if there is a very marked effect.

D. E. Hopkins

D. E. HOPKINS

Supvry Biotechnician

CUADRO # 1
Table # 1

Las cantidades de adultos y masas colectadas en las Zonas "A" y "B" durante las fechas indicadas.

(Numbers of adults and masses collected in Zones "A" and "B" during the indicated dates)

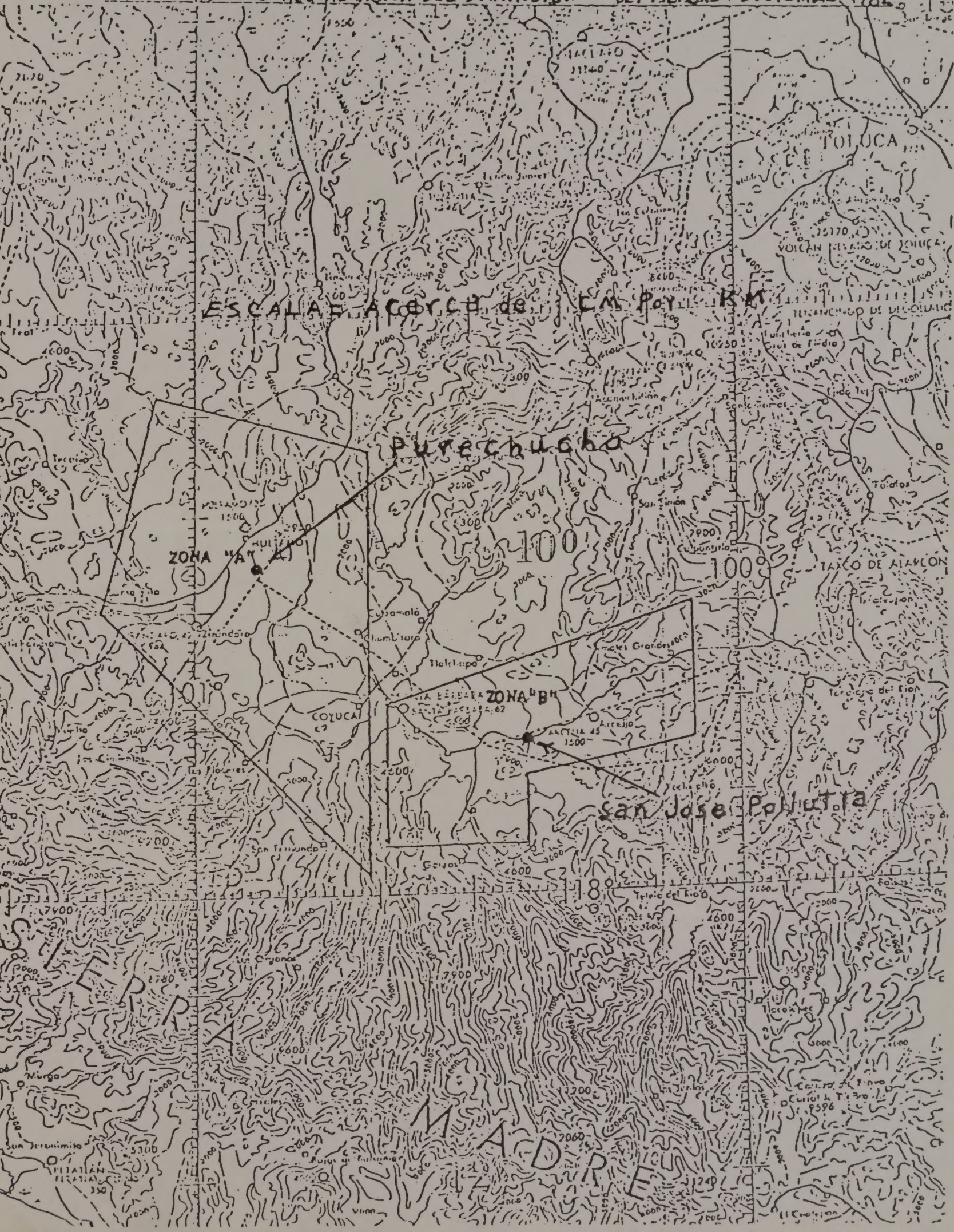
ZONA (ZONE)	FECHAS DE COLECCION (DATES OF COLLECTION)	No. DE TRAMPAS POR NUMERO DE DIAS. (No. OF TRAP-DAYS)	No. DE CORRALES POR NUMERO DE DIAS. (No. OF CORRAL- DAYS)	No. DE ADULTOS			No. DE MASAS (No. OF MASSES)
				♂	♀	0 D*	
A	18-24-X	104	35	0	2	219	12
B	"	103	35	1	1	62	49
A	25-31-X	105	35	0	0	41	31
B	"	105	35	0	1	31	112
A	1-7-X1	105	35	0	0	30	7
B	"	101	35	0	10	28	47

* Moscas No. GBG (Flies not screwworm)

Mapa

AREA DE ESTUDIO REEVALUACION DEL S.W.A.S.S.

SEPTIEMBRE - DICIEMBRE 1982





United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region

O. H. Graham

16 Nov. 1982

Harold,

In the past we have discussed my research proposals that address the acquisition of carbohydrates by screwworms. Preliminary tests indicate that your HPLC unit has the sensitivity to resolve the various sugars extracted from a single fly. Hence, we can proceed with further tests to determine the limitations of the technique while initiating studies on the metabolism of carbohydrates by ~~screwworms~~.

On this letter I include the rationale behind my research, and details of 3 protocols. Please comment on these protocols as you see fit. I
from R. J. Brenner -
see folder on
SUGAR FEEDING PROJECT

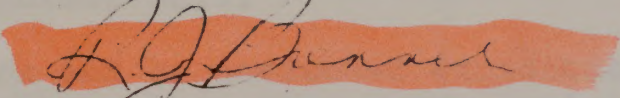


16 Nov 1982

DelVar,

Please find enclosed a copy of a letter written to Harold Brown regarding research protocols. Included in this is a list of hypotheses being tested and a flow chart indicating which hypotheses are being tested at each step. I have included my proposed method for testing each hypothesis below each statement (H_0 and H_A). Would you please review this letter, list of hypotheses and flow chart? I am interested in your opinions regarding experimental design and proposed statistical tests. In particular I am anxious to receive your opinions regarding the testing of H_2 , H_3 , and H_4 .

Sincerely,


R. J. Bunker

Research Entomologist

encl

cc O. H. Graham
H. E. Brown

RECEIVED NOV 21 1982

M. Beroza & Associates, Inc.

CONSULTANTS

821 MALTA LANE, SILVER SPRING, MARYLAND 20901

Phone (301) 593-2103

November 16, 1982

Dr. O. H. Graham
USDA-ARS Screwworm Research
P. O. Box 986
Mission, TX 78572

Dear Hugh:

As I mentioned in our conversations, I have read the materials you sent me and am very favorably impressed by the SWASS approach. I feel confident that a slow-release formulation can be developed to extend the duration of swormlure attraction from one to perhaps four or five days, which I believe is your target.

The major effort I would propose would involve design and engineering of a pellet-lure dispenser combination that can be ejected from aircraft plus chemical work to check emission rates of the lure chemicals from the dispensers.

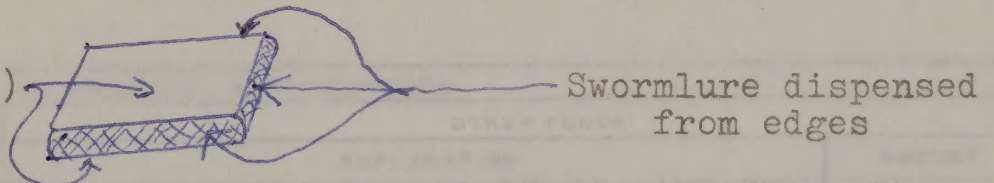
Basically, the proposed dispenser would combine the following elements:

- a. 3-layer plastic laminate to dispense the sec. and isobutyl alcohols and the dimethyldisulfide
- b. another laminate to dispense the remaining ingredients of swormlure (if it can't be combined with item a.).
- c. poison bait (food) pellet
- d. the geometry of the dispenser to be such that exposure of a., b. and c. are assured.

By way of example, the following diagram shows a possible pellet:

poison bait

(available top and bottom)



The poison bait on the top surface would be available to the fly. The Swormlure can volatilize from the edges regardless of which side the pellet (rectangular) lands on. The poison bait can be a wafer (rather thin) to save on material.

Another possibility is the usual flat 3-layer plastic dispenser of the lure coated with the poison partially on its surfaces. The dispenser design will depend to some extent on the plastic to be used and the qualities of the poison bait.

I believe this work can be conducted expeditiously by Hercon Products at their York, PA factory where they have chemists, chemical instrumentation, engineers, and production facilities on hand. Assuming this is considered, such an effort would require the close cooperation of the Mission lab, APHIS, and Hercon.

I trust the foregoing is helpful.

Sincerely,

With best regards,

Mort

Morton Beroza

(1) REQUESTING AGENCY USDA-ARS-SR-OTA-Screwworm Research		(2) PLACE OF MEETING San Jose and other cities in Costa Rica	
(3) TITLE OF MEETING AND SPONSORING ORGANIZATION Cooperative research with Interamerican Institute for Cooperation on Agriculture			
(4) OPENING DATE January 19, 1983	(5) CLOSING DATE January 28, 1983	(6) TRAVEL TO BEGIN January 17, 1983	(7) TRAVEL TO END January 30, 1983
(8) KIND OF MEETING (Check one) ☒ INTERNATIONAL ☐ OTHER OVERSEAS ☐ COMMON INTEREST ☐ NATIONAL ☐ REGIONAL ☐ STATEWIDE			
(9) IF "INTERNATIONAL" OR "FOREIGN" LIST OTHER COUNTRIES TO BE VISITED ON OFFICIAL TIME			
(10) ITINERARY From McAllen, Texas to San Jose, Costa Rica and return via Tuxtla Gutierrez, Chiapas, Mexico.			

(11) MODE OF TRAVEL (Check one)
☒ COMMON CARRIER ☐ GOVERNMENT VEHICLE ☐ PRIVATELY OWNED AUTOMOBILE-RECOMMENDED MILEAGE _____

(12) RECOMMENDED PER DIEM \$ Standard rate for Government Civilians established by Dept. State

(13) NAMES AND TITLES OF PROPOSED PARTICIPANTS	OFFICIAL STATION	ESTIMATED TRAVEL EXPENSES		
		TRANSPORTATION	PER DIEM	TOTAL
Dr. Robert L. Mangan	Tuxtla Gutierrez, Chiapas, temporarily at work site, Mission, Texas	\$750.00	\$702.00	\$1,452.00

(14) PURPOSE OF MEETING AND JUSTIFICATION STATEMENT
To collect isofemale lines of Costa Rican screwworms including reported color variants and establish those lines in the research laboratory in Tuxtla Gutierrez, Chiapas, Mexico.

(15) FINANCIAL ARRANGEMENTS			
U.S.D.A. FUNDS		OTHER FUNDS	
APPROPRIATION SYMBOLS	AMOUNT	EXPLANATION	AMOUNT
301-9340-20480	\$1,452.00		

(16) APPROVALS					
DATE	✓	SIGNATURE	DATE	✓	SIGNATURE
11/23/82	✓	AGENCY USE O. H. GRAHAM, RL <i>O. H. Graham</i>			AGENCY HEAD
		AGENCY USE			*INTERNATIONAL ORGANIZATIONS STAFF
		AGENCY USE			*GROUP HEAD (ASSISTANT SECRETARY)

* Applicable only when meeting is "International" or "Other Overseas" (See instructions, Block 16)



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

O. H. Graham
Screwworm Research
P. O. Box 986
Mission, TX 78572

November 24, 1982

SUBJECT: Research on Gel Diets for Screwworm Larvae

TO: Dr. Nazario V. Pineda, Director
Dr. Robert E. Reichard, Acting Co-Director

In the enclosed table you will find data acquired by Drs. R. L. Harris and R. D. Peterson from their first series of tests with "Super Slooper" and other new materials for inclusion in larval rearing media. These tests were exploratory in nature and the results must be regarded as preliminary but we are encouraged to believe that it will be possible to replace the liquid medium-cotton linters mixture with an improved medium early next year. We have not included a larger body of data which was largely negative; if larvae did not develop to the crawl-off stage the results, with a few exceptions, are not included.

In Table 1B you see the results of the best formulations tested. Our principal problem at this point is that we have had difficulty replicating results - i.e., the yields from the same formulation have been highly variable and we do not know why they have been variable. A second series of tests was initiated last week and others are planned for early December. We hope that in the very near future Methods Development will be able to test one or more of the better formulations using a full size vat.

O. H. Graham

O. H. GRAHAM
Location/Project Leader

cc: Norvan Meyer
Floyd Smith
H. C. Hofmann
R. E. Lowe
W. H. Sudlow
R. L. Harris
R. D. Peterson
R. A. Bram
H. E. Brown
C. J. Whitten
J. R. Johnston

O. H. Graham



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Screwworm Research
P. O. Box 986
Mission, TX 78572

November 24, 1982

SUBJECT: Selection of Research Entomologist for Announcement 421-2-0147
Vacancy in Tuxtla Gutierrez, Chiapas

TO: Lou Burkes
Personnel Branch, SRO
P. O. Box 53326
New Orleans, LA 70153

I recommend the selection of William L. Rubink for appointment to subject position. The certificate of eligibles (SEA Form 677) and supporting documents are returned as enclosures to this memorandum.

O. H. Graham

O. H. GRAHAM
Location/Project Leader

cc: R. A. Hoffman

N. K. Amara1

VIA AIR MAIL

VIA AÉREA

PAR AVION

A PRESSÃO ARTERIAL ELEVADA
PODE ENCURTAR SUA VIDA
CONSULTE SEU MÉDICO



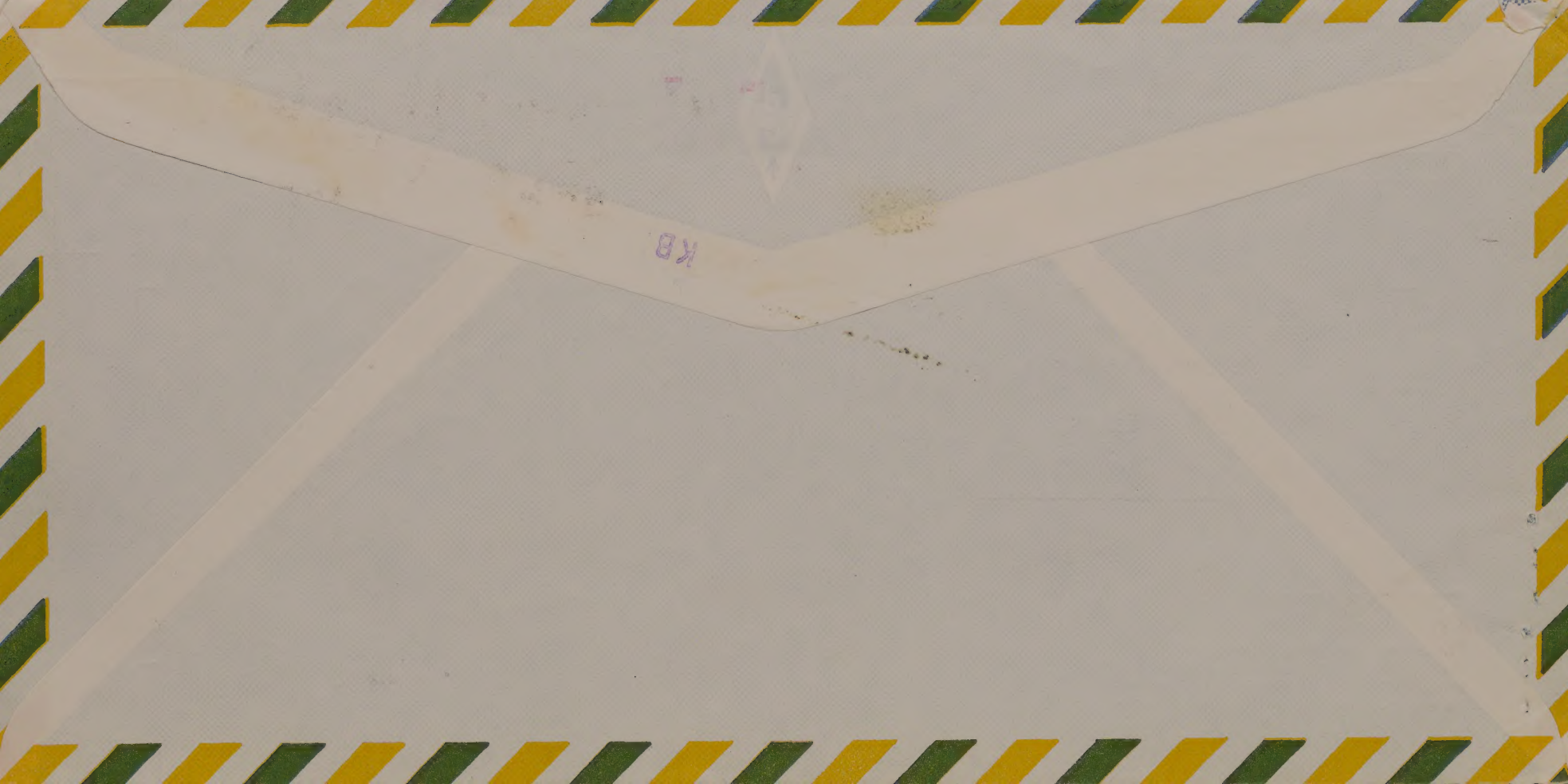
P.B.-M. 5793

DR. O.H.GRAHAM
Screwworm Research
P.O. Box 986
Mission - Texas
78572 - USA

MSDAGVET



Divisão de Merck Sharp & Dohme
Indústria Química e Farmacêutica Ltda.
SÃO PAULO: Av. Brigadeiro Faria Lima, 1815
2.o andar - Cep: 01451 - Fone (011) 211-7811



KB



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Screwworm Research
P. O. Box 986
Mission, TX 78572

November 29, 1982

Dr. José Ferrer
Inter-American Institute
for Cooperation in Agriculture
P. O. Box 55
2200 Coronado
San José, Costa Rica

Dear José:

It was a pleasant surprise to see you in Chihuahua last week; I hope your return trip to Costa Rica was pleasant and uneventful. *Ramirez*

After my return from Chihuahua I was talking with Mr. William Sudlow who was in Central America recently with the APHIS team. He was telling me about a conversation in Costa Rica with Dr. Freddy Rodriguez who mentioned that he has been seeing some unusual color variants in screwworms from at least one locality in Costa Rica. This was very interesting to us as we would like to establish a few genetic lines of Central American screwworms in our laboratory in Tuxtla Gutierrez. If we could arrange for one of our scientists to travel to Costa Rica in the latter part of January, do you think that Dr. Rodriguez *Ramirez* would be able to help him collect egg masses and rear them to the pupa stage?

Any assistance you can give us will be very much appreciated.

Sincerely,

Hugh

O. H. GRAHAM
Location/Project Leader

cc:
R.A. Hoffman
R.A. Bram
C.J. Whitten
T.G. Murnane
R.L. Mangan
H.C. Hofmann
W.L. Sudlow

BORRADOR DE PROTOCOLO
PARA LA PRUEBA DE EFICACIA
DEL DEVIL-DUST.

7 Dec. 1982

INTRODUCCION .

La Comisión México-Americana para la Erradicación del Gusano Barrenador del Ganado, a través de sus distintos departamentos hace patente su interés por llegar a establecer un control biológico de la mosca del gusano barrenador del ganado Cochliomyia hominivorax (Coquerel), así como la prevención de infestaciones y tratamientos de heridas en las épocas de manejo de los animales donde se hacen actividades tales como: castraciones, descornes, herraje, etc., así como en las épocas de pariciones ó bien todo tipo de herida que los animales sufran por cualquier medio.

Es por eso que el departamento de Desarrollo de Métodos en su área de pruebas de campeo, lleva a cabo distintas pruebas en el tratamiento de heridas utilizando varios insecticidas y dando a conocer sus resultados para el uso de los mismos.

OBJETIVOS.

- 1.- Establecer una comparación del compartimiento de los insecticidas 4072 (supona) y Devil Dust en la prevención y tratamiento de heridas.
- 2.- Comprobar efectividad larvícida de los productos.
- 3.- Determinar los efectos del vehículo oleoso en la efectividad del producto.
- 4.- Determinar el tiempo de cicatrización en ambos productos.
- 5.- Repelencia de los productos a las moscas.
- 6.- Efecto residual de los dos larvícidas.
- 7.- Observar el comportamiento de los productos en polvo y mezclado con aceite.

MATERIAL Y METODOS.

- 1.- Larvas de primer estadio.
- 2.- Máquina para esquileo.
- 3.- Aretes y marcadores para identificación.
- 4.- 30 ovinos.
- 5.- Insecticidas.
- 6.- Balanza
- 7.- Pinzas de ratón
- 8.- Mango y hojas de bisturí
- 9.- Algodón
- 10.- Personal (3 personas Comisión y 3 personas del laboratorio)

PROCEDIMIENTO:

Se instalarán los 30 borregos en lotes de 5 animales por corral, necesitando 6 corrales con comedero y bebedero.

Los animales se procederá a herirlos en forma circular con un diámetro de aproximadamente 6 cm. previo esquileo en la región glútea para después infestarlos con larvas del gusano barrenador (1er estadio) aproximadamente 100-150 larvas por herida.

A las 24 hrs. comprobar si hay infestación.- Dejar a las larvas 72 hrs para que alcancen su desarrollo y enseguida iniciar el tratamiento. Hacer observación a partir de los 20 min, después del tratamiento con los productos hasta las 5 hrs para ver mortalidad (%). Usar 3 gr. en polvo por herida aplicando directamente.

DL50		6-10mg/Kg						DL50		4000-5000 mg	
A		4072		C . D.D		E D D					
.06 activo		2%		.09 activo		3%		.15 activo		5%	
5 animales		3 gr.		5 animales		3g.		5 animales		3g	
B		4072		D		Devil Dust		F D.D.			
.001 activo		2%		.0015 activo		3%		.0025 activo		5%	
5 animales		25 gr.		5 animales		25gr.		5 animales		25%	
Diluidos											
en 1/2 lto		aceite comestible.									

Deluir 25 gr. en 1/2 lto. de aceite y hacer la aplicación tópica en la herida.

Explicación gráfica del trabajo.

$$\frac{1523}{25} = 60.92 \quad \left. \vphantom{\frac{1523}{25}} \right\} 61.6$$

$$\frac{1557}{25} = 62.28$$



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Screwworm Research
P. O. Box 986
Mission, TX 78572

December

November 2, 1982

Dr. Ney Kramer Amaral
Director of Animal Research
MSD-AGVET Brazil
Merck Sharpe & Dohme
Av. Brigadeiro Faria Lima, 1815
2^o andar - Cep 01451
Sao Paulo, Brazil

Dear Dr. Amaral:

I was very happy to receive your letter of November 19 and learn that you will be experimenting with ivermectin for screwworm control. We have been very interested in attempting to develop techniques for using ivermectin in the Mexico program, particularly for treating livestock that are been shipped from infested to screwworm-free Zones, but the results of our first trails were disappointing. Please keep us informed of any progress that you may make.

Perhaps I should explain that USDA has tested or is testing ivermectin in three ways. Dr. Dennis Ring has completed in vitro tests (copy of manuscript enclosed), Dr. John Spencer is working with artificially infested sheep, and Dr. Chris Hofmann and associates of USDA-APHIS-Methods Development plan to treat bovines, (Dr. Roncalli was probably referring to the latter tests).

You will note that in vitro ivermectin appeared to be about 10X more toxic to screwworms than coumaphos, our standard of comparison. The results of Dr. Spencer's tests have been inconsistent and difficult to understand but he has observed some control of screwworms when sheep were treated at 400 $\mu\text{g}/\text{kg}^{\text{SC}}$ and higher doses. He is continuing to work with artificially infested sheep in an attempt to obtain more uniform responses.

The Methods Development group has not yet initiated their trials but expect to do so in the near future.

Do you believe that other methods of treating cattle might be more efficacious than subcutaneous injections? Do you know of any progress in the development of ear implants, boluses or other treatments that would provide a therapeutic level of the insecticide in the animals body for a prolonged period, or even for a few days? Any help or suggestions that you can give us will be very much appreciated.

Thank you for your personal inquiries. I have been blessed with good health and, in spite of working harder than I ever worked before, I am enjoying my association with Mexico eradication program. I hope that you too are realizing a great deal of personal satisfaction from your present employment.

With best personal regards, I am

Sincerely,

Hugh

O. H. GRAHAM
Location/Project Leader

Enclosure

cc;

J. P. Spencer (w/copy of incoming)

H. C. Hofmann (w/copy of incoming)

São Paulo, December 16, 1982

DR. O. H. GRAHAM
Screwworm Research
P.O. Box 986
Mission - Texas
78572 - U.S.A.

Dear Dr. Graham:

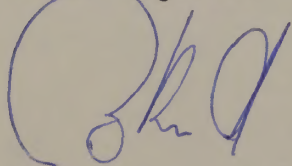
Thank you very much for your letter dated November 2 (should probably be Dec. 2) as well as for the useful information on the preliminary experiments with ivermectin against the screwworm larvae. This information will be very useful for planning our local experiments. It will be treated as confidential.

Apparently the plasma levels obtained in sheep or cattle with the present ivermectin injection, are not high enough to produce the desirable effect against larvae of C. hominivorax in a consistent way. Perhaps some different formulations now under development will show better results in the near future. The puzzling fact which we have observed here in the field, is the outstanding residual effect of ivermectin in cattle, against reinfestation by larvae of Dermatobia hominis. What should cause such a different effect on these two similar parasites? An interesting subject to be studied by the pharmacodynamic experts.

In case our experiment plans would be approved, I hope to send you some more news in the future.

It was a great pleasure to hear that you keep in good shape and happy. Thanks to God (as well as to you) I have the same feelings. I take this opportunity to wish you a Merry Christmas and Happy New Year.

Best regards.



Ney Kramer Amaral
IASR Associate Director
MSD-AGVET Brazil



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Veterinary Toxicology
and Entomology
Research Laboratory

P.O. Drawer GE
College Station, Texas
77841

December 7, 1982

SUBJECT: Foreign Travel Report

TO: E. L. Kendrick
Regional Administrator
USDA, ARS, SR
P.O. Box 53326
New Orleans, LA 70153

Attached are eight copies of my Foreign Travel Report as requested.

R. L. HARRIS
Research Leader

Enclosure

cc: w/encl.

R. A. Bram, NPS

J. R. Johnston, AD

D. A. Witzel, LD

R. O. Drummond, LD

O. H. Graham, RL

United States Department of Agriculture, Agricultural Research Service,
Southern Region -- FOREIGN TRAVEL REPORT

1. Traveler; title; laboratory; center or field station affiliation; location;
and NRP:

R. L. Harris, Research Leader
Biological Control Research Unit
Veterinary Toxicology & Entomology Research Laboratory
College Station, Texas 77841
NRP - 20480

2. Country or countries visited and period of travel:

Mexico
November 14 - November 20, 1982

3. Purpose of Trip: To discuss the possibility of developing a new screwworm
larval rearing media and to observe the rearing procedure at Tuxtla
Gutierrez, Chiapas, Mexico.

4. Summary: Several diets were tested as screwworm larval rearing media. The
data from the tests are being collected.

5. Travel Details: The various media that contained SPG-147 as a gelling agent
was tested. Variations included the amount of SPG-147, different nutrient
ratios, and different nutrients and preservatives. The data from these
tests are being collected.



United States
Department of
Agriculture

Agricultural
Research
Service

North Central Region
Metabolism and
Radiation Research
Laboratory

P.O. Box 5674
State University Station
Fargo, North Dakota
58105

RECEIVED DEC 14 1982

December 8, 1982

SUBJECT: Mating Types in Screwworm Populations?

TO: A. C. Bartlett
R. A. Bram
R. J. Gagné
/ O. H. Graham
D. O. McInnis
J. A. Seawright
C. J. Whitten

Our technical comments on the original article by Richardson et al was published in the December 10 issue of Science (Vol. 218, pp. 1142-1145). I trust that all of you have seen the article by now as well as the rebuttal by Richardson et al. Dr. Bram and I discussed the rebuttal by telephone and agreed that there was certainly no point in publicly arguing this issue any further. Dr. Bram did request that I coordinate an "in house" analysis of Richardson's rebuttal so that it would be available for anyone in ARS or APHIS desiring more information. I am hesitant to ask any of you to spend more time on this matter because I feel that time spent gathering good data will be more profitable in the long run. However, the "in house" analysis could be of value for members of the NPS or Administrator's Office. In fact, I would certainly be interested in your assessment "off the record."

I would appreciate it if you could send me your comments by 20 January. Some of you may wish to comment briefly, others at length. All comments will be sent to Dr. Bram unedited. I will attempt a brief summary and then forward the package to Dr. Bram and each of you.

Thank you for your continued and valuable cooperation in this matter.

L. E. LaChance

L. E. LaChance
Research Geneticist -
National Technical Advisor
for Insect Genetics



United States
Department of
Agriculture

Agricultural
Research
Service

Western Region

California-Hawaii Area
Tropical Fruit & Vegetable
Research Laboratory
P. O. Box 2280
Honolulu, HI 96804

December 8, 1982

IN REPLY
REFER TO: MS #4343

Ms. Teresa Carson
Managing Editor
Storer Hall
University of California
Davis, CA 95616

Dear Teresa:

Enclosed is a revision of my paper on screwworm cytogenetics for the Notes and Comments section. I have followed the recommendations of reviewer #1 and I hope that this version will be acceptable, pending acceptance of the Annals of the E.S.A. paper. I will let you know as soon as I hear if the McInnis et al. paper is accepted.

Sincerely,

Don McInnis

DON MCINNIS
Research Geneticist

Enclosure

cc: O. H. Graham w/enclosure

For: The American Naturalist
(Notes and Comments Section)

Please send proof to:
Dr. O. H. GRAHAM
Screwworm Research
P. O. Box 986
Mission, TX 78572

Chromosomal Variation in the Screwworm:

Polymorphism or Cryptic Species?

Donald O. McInnis

USDA/ARS, Screwworm Research Lab, Mission, TX

In a recent article, Richardson et al. (1982) conclude that several reproductively isolated types of the screwworm, Cochliomyia hominivorax (Coquerel), exist in Mexico. They have recognized and defined these gamodeme types as de facto biological species or semi-species, based primarily on karyotype differences and secondarily on assumed differences in male genitalia. Since the joint US-Mexico screwworm eradication program is ultimately concerned with the mating compatibility of mass-produced, sterilized, and released screwworm flies with native screwworm flies, the conclusions of Richardson et al. need to be addressed. They assert that the karyotypes of mass-produced screwworms have failed to adequately match the karyotypes of some native populations. When this occurs, they claim that strong mating barriers exist between sterile and native adults. Consequently, high release rates of sterile flies would be necessary, and perhaps not sufficient, to achieve complete eradication.

The contentions of Richardson et al. appear plausible and might, if proven, provide a partial explanation for some of the problems encountered in eradicating screwworms from particular areas of the U.S. and Mexico. However, their views are not universally held. A long-standing alternative viewpoint apparently ignored by Richardson et al. has been outlined by several USDA scientists in a technical response (LaChance et al. 1982). Contradictory evidence, discussed below, gathered by McInnis (1981), McInnis et al. (1982, manuscript in review), and Gagne and Peterson (1982) make the cytogenetic and morphological classifications of Richardson et al. improbable. In addition, real effects relating to nonheritable factors of screwworm fly quality such as rearing

conditions, irradiation, pupal transport, and the methodology of aerial dispersal are briefly entertained by Richardson et al. but dismissed as unimportant.

In his study of a local screwworm population from northeastern Mexico, McInnis (1981), using the same cytological techniques cited in Richardson et al. (1982), found extensive chromosomal polymorphism. Bonafide chromosomal heterozygotes, especially of the X chromosomes, were detected and there were no significant associations of non-homologous chromosomes. Therefore, no distinctive karyotypes were found which could be used to characterize reproductively isolated segments of the population. However, there was a significant deficiency of chromosomal heterozygotes coupled to a pattern of homotypic (like with like) mating. Besides the Wahlund effect, also mentioned by Richardson et al., inbreeding, heterozygote inviability, other sampling errors, and positive assortative mating (which implies a choice of mates and therefore includes the extreme gamodeme model) may have contributed to the observed chromosome patterns. In addition, the results may have been influenced by the limited resolution of the cytological technique used for characterizing chromosome types. If so, the proportion of chromosomal heterozygotes would likely have been underestimated due to conservative chromosome scoring.

A more definitive study of screwworm mating patterns was conducted in a large-scale field test along the Pacific coastal plain of southern Mexico (McInnis et al., manuscript under review). This project, proposed and conducted entirely by USDA scientists and technicians, was referred to as the Chiapas field test and was discussed briefly by Richardson et al. (1982). Duplicate samples of larvae reared from egg masses

collected in the field were sent to Richardson and coworkers at the University of Texas and to the USDA Screwworm Research Laboratory in Mission, TX for genetic analysis. The subsequent cytogenetic interpretation of McInnis and coworkers differs sharply from that of Richardson and coworkers. According to the former view, native screwworms demonstrated polymorphic chromosome variation characteristic of a single interbreeding population. Richardson and coworkers concluded that several partially or completely reproductively isolated sympatric screwworm populations (gamodemes) were present. Extensive chromosome variation was found by McInnis and coworkers, especially for the sex chromosomes, including a number of clearly distinguishable heterozygotes. McInnis and coworkers detected no diagnostic karyotypes reflecting different mating types as advocated by Richardson et al. (1982) in spite of extensive and detailed numerical analyses. As discovered in the earlier study in northeastern Mexico (McInnis 1981), a deficiency of chromosomal heterozygotes suggested that screwworms probably mated non-randomly. Furthermore, preliminary evidence suggested that both a narrow-based (single egg mass) release strain and a broad-based (multiple egg mass) release strain may have shown positive assortative mating tendencies when mating with native flies. Thus, some evidence for preferential mating without major isolation is put forth by McInnis et al. (1981). Further investigation, in particular, mating choice tests, is needed to assess the significance of the findings to date.

From their study of the male genitalia of lines collected during the Chiapas field test, Gagné and Peterson (1982) also rejected the

multiple gamodeme hypothesis of Richardson et al. Gagné and Peterson found that the genitalic differences described by Richardson et al. were either physical artifacts caused by copulation or normal within group, as opposed to between group, variants. Though accidental contamination of laboratory stocks may occur in very rare cases, neither the chromosomal heterozygotes discussed above nor the variations in the genitalia can be attributed to laboratory contamination because in each case only the progeny of wild-mated flies were studied.

The viewpoints of USDA screwworm researchers and Richardson and coworkers on reproductive isolation in screwworms differ significantly. In spite of these differences, certain precautionary recommendations to the managers of the screwworm eradication program by Richardson and coworkers and this writer have been very similar. All parties agree that an expanded program of screwworm genetics research will be needed to prepare the eradication campaign for any real problem involving genetic compatibility of sterile and native screwworms which might be encountered. Areas of future investigation should include improvements in the techniques for cytogenetic analysis, mating choice tests, studies of mating behavior per se, and morphological taxonomy.

Literature Cited

- Gagné, R. J. and R. D. Peterson, II. 1982. Apparent male genitalia differences due to mating in the screwworm, Cochliomya hominivorax (Coquerel). Ann. Entomol. Soc. Am. 75: 574-578.
- LaChance, L. E., Bartlett, A. C., Bram, R. A., Gagné, R. J., Graham, O. H., McInnis, D. O., Whitten, C. J., and Seawright, J. A. 1982. Speculating on screwworm speciation. Science (in press).

McInnis, D. O. 1981. Cytogenetics of a local population of the screwworm,

Cochliomyia hominivorax, from northeastern Mexico. Ann. Entomol.

Soc. Am. 74: 582-589.

McInnis, D. O., C. J. Whitten, J. W. Mackley, R. D. Peterson, II, and

J. P. Spencer. Cytogenetics of the screwworm, Cochliomyia

hominivorax (Coquerel) (Diptera: Calliphoridae), from Chiapas,

Mexico. (in review).

Richardson, R. H., J. R. Ellison, and W. W. Averhoff. 1982. Autocidal

control of screwworms in North America. Science 215: 361-370.

Donald O. McInnis

(new address):

USDA/ARS

Tropical Fruit and Vegetable Research

Laboratory

P. O. Box 2280, Honolulu, Hawaii 96804

ID Document	1311		
Form 1	Research proposal		
Form 2			
Title	Research Priorities for Major APHIS Programs		
# of Pages	2		
Year	1982		
Month	December		
Day	16		
Color?	☐		
Spanish?	☐		
Subject line			
Subject heading 1	fly strain		
Subject heading 2	SWASS		
Subject heading 3	genetics		
Subject heading 4			
Description Note			
Author Info	Bram		
Additional Authors	F. E. Smith		
Recipient			
Sub-collection	Screwworm Eradication Re		
Treatment intent	scan & index		
Temp CD folder	145		
To be scanned?	☒	Scanning completed?	☐
To be re-keyed?	☐	Re-keying completed	☐
Out at SIG?	☐	Group	H



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Beltsville, Maryland
20705

December 16, 1982

SUBJECT: Research Priorities--Screwworms

TO: N. L. Meyer
ADA, International Programs, APHIS-VS

Enclosed please find the annual list of research priorities for screwworms in accordance with the Memorandum of Understanding between our agencies on this subject. This list of priorities was jointly developed by Dr. F. E. Smith and me in consultation with scientists and program personnel of our respective organizations.

RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals

Enclosure

cc:

T. J. Army
D. B. Laster
D. D. King
R. F. Barnes
J. R. Johnston
P. J. Fitzgerald
K. L. Lebsock
✓ O. H. Graham
C. J. Whitten
L. E. LaChance
C. H. Schmidt
F. E. Smith, APHIS-VS

RESEARCH PRIORITIES FOR MAJOR APHIS PROGRAMS

ARS Staff

APHIS Staff

Date: December 16, 1982

Name: R. A. Bram

Name: F. E. Smith

APHIS Program: Screwworm Eradication

Position: NRPL

Position: Chief Staff Officer

Current ARS Research Activities		APHIS Research Needs in Priority Order			
	SY	FY 83	FY 84	FY 85	Long Range Goals
1. Strain development	1	1. Strain development including hybrid vigor	1. Strain development including hybrid vigor	1. Strain development including population characterization	1. Strain development including population characterization
2. SWASS-swormlure enhancement	2.35	2. Attractants, including enhancement of swormlure	2. Attractants, including enhancement of swormlure	2. Attractants, including enhancement of swormlure	2. Ecology in Central America
3. Genetic characterization of populations	2.33	3. Diet improvement (larval and adult)	3. Diet improvement and rearing conditions	3. Diet improvement, stress, and strain deterioration*	3. Attractants
4. Field ecology	2.25	4. Genetics (basic genetics, population characterization, and all male strain	4. Genetics (basic genetics, population characterization, and all male strain	4. Genetic population characterization in Central America and the Caribbean*	4. Genetic population characterization in Central America, the Caribbean, and South America
5. All male strain	0.5	5. Ecology and population dynamics in southern Mexico and the Isthmus of Tehuantepec	5. Ecology and population dynamics in the Isthmus of Tehuantepec	5. Ecology and population dynamics in Central America and the Caribbean*	5. New rearing technologies
6. Population dynamics	0.75	6. Strain deterioration	6. Strain deterioration	6. Chemical control technology	6. Chemical control technology
7. Chemical control	0.25	7. Systemic insecticides	7. Systemic insecticides		A joint Research/Methods development planning meeting in Mexico is recommended for late spring 1983 and annually thereafter.
8. Rearing and dispersion	0.75				

* Items identified with an asterisk will require budget increases, redirection of resources, or other program adjustment for initiation in FY 85.

Research Priorities for Major APHIS Programs
SCREWORM ERADICATION

FY 83

Strain development, in cooperation with Methods Development personnel, is the highest APHIS research priority in FY 83 and for subsequent years. The importance of effective screwworm strains, provided on a regular, annual basis, cannot be overemphasized; included within this priority is research on the genetics of hybrid strains for production. Of second priority is research on screwworm attractants encompassing not only swormlure-SWASS enhancement, but also the chemistry of attraction and new approaches to screwworm attraction. The improvement of both larval and adult diet is of third priority and includes, but is not limited to, geletinized medium and environmental factors such as temperature. Genetics receive the fourth order of priority. Included within this category are research on methods of population characterization, genetic characterization of field populations, and research on the development of a male only strain. Isofemale lines will be invaluable in these investigations. Of fifth priority is screwworm ecology and population dynamics in southern Mexico and the Isthmus of Tehuantepec, including life tables, mating behavior, flight behavior, and other investigations necessary to devise eradication strategy under different ecological conditions. Research on the deterioration of strains, both from a genetical and a production management point-of-view is of sixth priority. Although of final priority, research on the use of systemic insecticides is extremely important for maintenance of quarantine lines.

FY 84

The first three priorities of FY 83 remain unchanged for FY 84. By now, research on ecology and population dynamics should be concentrated in the barrier zone. Research on strain deterioration should receive somewhat higher priority, but high priority should continue for diet improvement and improvement of rearing technology. Research on systemic insecticides is necessary as new potential products become available.

FY 85

Strain development and research on attractants will continue as the first two priorities. As the eradication program reaches the barrier zone, an increased effort on genetic characterization of populations in Central America and the Caribbean will be necessary. This will require an increase of 1 SY and \$200,000. Even greater emphasis should now be given to diet improvement, stress, and strain deterioration with the addition of 1 SY at the production plant and 1 SY at Fargo, North Dakota, along with \$400,000 increased funds for this purpose. Similarly, research on ecology and population dynamics in Central America and the Caribbean will necessitate a 1 SY increase and \$200,000. The effort on systemic insecticides should be sustained and expanded to include chemical control technology.

Long-Range Goals

The present goal of eradication is to reach the barrier zone at the Isthmus of Tehuantepec by December 1984. Interest has already been expressed by IICA and Ministers of Agriculture to continue eradication through Central America and the Caribbean. Thus, research to support these future initiatives must continue in strain development, ecology and population dynamics, genetic population characterization, new rearing technologies, and chemical control technologies.



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Graham
Beltsville, Maryland
20705

December 16, 1982

SUBJECT: Reproductive Isolation in Screwworm Populations

TO: T. B. Kinney, Jr.
Administrator

THROUGH: T. J. Army, DA, NPS
D. B. Laster, ADA, AHNPS

Further to our meeting on this subject with H. C. Mussman and his colleagues on October 20, 1982, and my followup memorandum of October 27, 1982, attached, for your information, please find the ARS response to the Richardson screwworm article in Science followed by his comments.

Until additional scientific data are available, I see no purpose in publishing further "letters" or "comments" on the Richardson hypothesis in the scientific literature. I have, therefore, requested that ARS scientists refrain from perpetuating a nonproductive dialogue. Nevertheless, Dr. Leo LaChance, NTA for Insect Genetics, has been requested to coordinate an analysis of the latest Richardson comments for internal use.

RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals

Enclosure



United States
Department of
Agriculture

Agricultural
Research
Service

North Central Region
Metabolism and
Radiation Research
Laboratory

P.O. Box 5674
State University Station
Fargo, North Dakota
58105

December 16, 1982

SUBJECT: Assignment of APHIS Personnel to ARS Labs

TO: Dr. Claude Schmidt,
Laboratory Director

Enclosed are two proposals prepared in response to Dr. Kinney's letter of November 26. The subject of each proposal has been discussed with Drs. Ralph Bram (NPS, ARS), Floyd Smith (NPS, APHIS), and Chris Hofman (Staff Entomologist, APHIS Screwworm Eradication Program). All were in agreement with regard to the bona fide need for the projects proposed.

While our laboratory space would allow only one of the projects to be undertaken at a time, we would welcome assistance from an APHIS scientist in the work.

Chandler J. Whitten
Research Entomologist
Screwworm Project Leader

Region _____ Priority _____

Opportunity for Assignment of APHIS Scientist to ARS Lab

Laboratory Metabolism and Radiation Research Laboratory

Address P.O. Box 5674
Fargo, North Dakota 58105

Justification of need for APHIS scientist There is a genuine interest on the part of the management of the APHIS screwworm eradication program to investigate the possibility of using the principle of hybrid vigor to enhance the effectiveness of the release flies. Certain research projects being done at this laboratory involve the production of hybrid screwworms to be used for genetic studies, but the lack of scientific personnel precludes an extension of the study to assess the insects for evidence of heterosis or to make further studies into the induction of heterosis. The assignment of an APHIS scientist could provide the support necessary to properly respond to the needs of APHIS.

Description of contribution to ARS program

In contributing to the ARS screwworm research program of providing direct research support to the screwworm eradication program, the APHIS scientist would investigate for the presence of heterosis among the hybrid progeny of pure lines of screwworms. (The purity of the cultures would be established by ARS geneticists.) The scientist would establish parameters such as insect size, survival, male competitiveness, etc. as criteria to assess the potential of the hybrid insects. A demonstration of hybrid vigor would serve as an impetus for APHIS to consider a multiple strain concept in producing sterile flies for release. Equally important would be the new knowledge gained that could be applied to the development of strains of screwworms for release, currently an ARS function.

Region _____ Priority _____

Opportunity for Assignment of APHIS Scientist to ARS Lab

Laboratory Metabolism and Radiation Research Laboratory

Address P.O. Box 5674
Fargo, North Dakota 58105

Justification of need for APHIS scientist Several biochemical methods have been developed by ARS scientists for evaluating the metabolic potential of the screwworm. But, because of assigned priorities, the work has not been completed to a stage that would be most useful to APHIS. However, with the preliminary work having been completed an APHIS scientist familiar with the mass production of screwworms could assess and consolidate the techniques into a program suitable for monitoring the quality of screwworms produced for the eradication program.

Description of contribution to ARS program

The primary objective of the ARS research program with screwworms is to provide direct support to the APHIS screwworm eradication program. The APHIS scientist would contribute to the ARS program by evaluating biochemical techniques, primarily quantitative and qualitative measurements of metabolic activities of screwworms in vivo and in vitro, and determine the adaptability and feasibility of each technique to the quality control program of the APHIS methods and development group. With the insects, equipment, and expertise available at the ARS laboratory, the APHIS scientist would provide the critical link of adapting established technology for use by an action program.



Tickler

NOV 26 1982

SUBJECT: Assignment of APHIS Personnel to ARS Labs

TO: R. F. Barnes, Acting Regional Administrator, SR
H C Cox, Regional Administrator, WR
P. J. Fitzgerald, Regional Administrator, NCR ✓
G. E. Vanden Berg, Acting Regional Administrator, NER

From time to time we have had APHIS personnel assigned to work in cooperation with our scientists in our laboratories. I believe that in most instances these APHIS scientists have greatly benefited our programs. The ARS/APHIS research and diagnosis committee chaired by Dr. Lyle Hanson has responded to my request to examine the relationships between ARS and APHIS and has recommended that APHIS personnel be assigned to our laboratories.

This is to request that you examine opportunities for such assignments and have one page proposals developed according to the enclosed format. Please prioritize them and provide them to me by January 1, 1983.

Please give special attention to the justification of the need and the description of the contribution such people could make.

T. B. Kinney

T. B. KINNEY, JR.
Administrator

Enclosure

cc:

O. G. Bentley
M. E. Carter
I. D. Branson
T. J. Army



United States
Department of
Agriculture

Agricultural
Research
Service

National
Program
Staff

Braham
Beltsville, Maryland
20705

December 17, 1982

SUBJECT: ARS Scientists--Insects Affecting Man and Animals

TO: LD's, RL's, PL's, Research Scientists

Enclosed, for your information, please find current listings and phone numbers of ARS scientists conducting research in the area of Strategic Plan Approach 3.5, "Develop Means to Control Insects, Ticks, and Mites Affecting Animals and Man." I hope you will find this as useful as I have as a ready reference to frequently called colleagues.

Please accept my most sincere Season's Greetings and gratitude for your support and cooperation during 1982.

Raph

RALPH A. BRAM
National Program Leader
Insects Affecting Man & Animals

Enclosure

Physiology & Biochemistry of Livestock Insect Research Unit

Chen, Andrew C.	FTS: 327-1401	See Enc
Dank, Benjamin J.	327-1426	See Enc
Edwards, R. Mark	327-1426	See Enc
Hayes, Richard T. (ML)	327-1402	See Enc
Speake, George S., Jr.	327-1404	See Enc

Cellular Technology Research Unit

Smith, Shirley H.	FTS: 327-1179	See Enc
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Integrated-Hosts Animal Diseases Research Unit

Day, David B.	FTS: 234-2344	See Enc
Edwards, Fred E.	234-2344	See Enc
James, Robert E.	234-2474	See Enc
Valley, Thomas E. (LD/ML)	234-2474	See Enc 0161

Cynthia

December 1982

SCIENTISTS
INSECTS AFFECTING MAN AND ANIMALS BY LOCATION
Strategic Plan Approach 3.5

BELTSVILLE, MD

Livestock Insects Laboratory

Crystal, Maxwell M.	FTS: 344-2017	Res Ent
Giang, Paul A.	344-4169	Res Chem
Hayes, Dora K. (LC/RL)	344-2474	Res Chem
Jaffe, Howard	344-4168	Res Chem
Miller, Richard W.	344-2975	Res Anim Sci
Morgan, Neal O.	344-2277	Res Ent
Pickens, Lawrence G.	344-2974	Res Ent
Redfern, Robert E.	344-2298	Res Ent
Schmidtman, Edward T.	344-2973	Res Ent

COLLEGE STATION, TX

Biological Control Research Unit

Blume, Richard R.	FTS: 527-1324	Res Ent
Fincher, G. Truman	527-1336	Res Ent
Harris, Robert L. (RL)	527-1317	Res Ent
Roth, James P.	527-1326	Res Ent

Physiology & Biochemistry of Livestock Insects Research Unit

Chen, Andrew C.	FTS: 527-1401	Res Ent
Cook, Benjamin J.	527-1320	Res Ent
Holman, G. Mark	527-1322	Res Ent
Mayer, Richard T. (RL)	527-1402	Res Ent
Spates, George E., Jr.	527-1404	Res Ent

Cellular Toxicology Research Unit

Meola, Shirlee M.	FTS: 527-1339	Res Ent
-------------------	---------------	---------

DENVER, CO

Arthropod-borne Animal Diseases Research Laboratory

Akey, David H.	FTS: 234-3344	Res Ent
Holbrook, Fred R.	234-3344	Res Ent
Jones, Robert H.	234-2474	Res Ent
Walton, Thomas E. (LD/RL)	234-2474	Vet Med Offi

FARGO, NDMetabolism & Radiation Research Laboratory

Gassner, George (RL)	FTS: 783-5451	Res Gen Ins
Hammack, Leslie	783-5447	Res Ent
LaChance, Leo E.	783-5291	Res Gen Ins
Nelson, Dennis R. (RL)	783-5465	Res BioChem
Whitten, C. James (PL)	783-5354	Res Ent

GAINESVILLE, FLInsect Repellents, Household Insects, Chemical & Bioengineering RU

Carlson, David A.	FTS: 947-7290	Res Chem
Haile, Danel G.	947-7323	Ag Eng
Schreck, Carl E.	947-7327	Res Ent
Weidhaas, Donald E. (LD/RL)	947-7204	Res Ent

Mosquito Biology & Control, Pesticides & Pathology Research Unit

Bailey, Donald L.	FTS: 947-7207	Res Ent
Dame, David A. (RL)	947-7206	Res Ent
Focks, Dana A.	947-7326	Res Ent
Kline, Daniel L.	947-7292	Res Ent
Lacey, Lawrence A.	947-7321	Res Ent
Roberts, Richard H.	947-7292	Res Ent
Undeen, Albert H.	947-7335	Res Ent

Fly Biology & Control Research Unit

Burden, George S.	FTS: 947-7310	Res Ent
Morgan, Phillip B.	947-7307	Res Ent
Patterson, Richard S. (RL)	947-7208	Res Ent

Panama City, FL

Hogsette, Jerome A., Jr.	904-763-2153	Res Ent
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Genetics, Radiation, & Insect Attractants Research Unit

Seawright, Jack A. (RL)	FTS: 947-7322	Res Ent
Smittle, Burrell J.	947-7294	Res Ent

Imported Fire Ant Research Unit

Adams, Claude T.	FTS: 947-7265	Res Ent
Glancey, B. Michael	947-7357	Res Ent
Jouvenaz, Donald P.	947-7266	Res Ent
Lofgren, Clifford S. (RL)	947-7356	Res Ent
Vander Meer, Robert K.	947-7267	Res Chem
Williams, David F.	947-7358	Res Ent
Wojcik, Daniel P.	947-7348	Res Ent

GULFPORT, MS

Imported Fire Ant Research Laboratory

Banks, William A. (RL)

FTS: 499-2639

Res Ent

KERRVILLE, TX

Ticks Research Unit

George, John E. (RL)

512-257-3566

Res Ent

Hilburn, Larry R.

512-257-3566

Res Gen Ins

Hunt, Lawanda M.

512-257-3566

Res Chem

Poteau, OK

Barnard, Donald R.

918-647-9121

Res Ent

Koch, Henry G.

918-647-9121

Res Ent

Mount, Gary A.

918-647-9121

Res Ent

Falcon Heights, TX

Davey, Ronald B.

512-848-5214

Res Ent

Mayaguez, PR

Garris, Glen I.

FTS: 967-1221

Res Ent

Scabies Research Unit

DeLoach, John R. (RL)

512-257-3566

Res Chem

Fisher, William F.

512-257-3566

Res Micro

Guillot, Frank S.

512-257-3566

Res Ent

Wright, Fred C.

512-257-3566

Res Chem

Biting Fly - Cattle Grub Research Unit

Chamberlain, William F.

512-257-3566

Res Ent

Drummond, Roger O. (LD)

512-257-3566

Res Ent

Kunz, Sidney E. (RL)

512-257-3566

Res Ent

Miller, J. Allen

512-257-3566

Agr Eng

Schmidt, Charles D.

512-257-3566

Res Ent

Lethbridge, Canada

Scholl, Phillip J.

403-327-4561

Res Ent

LAKE CHARLES, LA

Gulf Coast Mosquito Research Laboratory

Hazard, Edwin I. (RL)
McLaughlin, Roy E.

FTS: 687-7204
687-7204

Res Ent
Res Ent

LINCOLN, NE

Midwest Livestock Insects Research Laboratory

Berry, Ivan L. (RL)
Gilbertson, Conrad B.
Petersen, James J.
Thomas, Gustave D.

FTS: 541-5267
541-5267
541-5267
541-5267

Agr Eng
Agr Eng
Res Ent
Res Ent

TUXTLA GUTIERREZ, MEXICO

Screwworm Research Laboratory

Brenner, Richard J.
Graham, O. Hugh (LL/PL)
Mackley, James W.
Peterson, Richard D.
Spencer, John P.

9-011-52-961-260-39
9-011-52-961-260-39
9-011-52-961-260-39
9-011-52-961-260-39
9-011-52-961-260-39

Res Ent
Res Ent
Res Ent
Res Ent
Res Ent

Weslaco, TX

Brown, Harold E.

FTS: 729-4011

Res Chem

NATIONAL TECHNICAL ADVISORS

Insects Affecting Man
Livestock Insects
Insect Genetics
Insect Physiology
Pest-Related Natural
Products Chemistry

Donald E. Weidhaas
Roger O. Drummond
Leo E. LaChance
Edwin P. Marks
Jack R. Plimmer

FTS: 947-7204
512-257-3566
FTS: 783-5291
FTS: 783-5473
FTS: 344-2028



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Screwworm Research
Apartado Postal #544
Tuxtla Gtz., Chis., Mexico

December 22, 1982

Dr. Harold E. Brown
USDA, ARS, SR, OTA
Agricultural Products Quality Research
P. O. Box 267
Weslaco, TX 78596

*see file
folder
SUGAR FEEDING
PROJECT
for inclosures*

Dear Harold,

By way of Bob Mangan I have sent 287 samples for HPLC analysis. Vials are numbered and arranged from 1 - 287. I also enclose a list of code numbers which also describes the "class" of each fly. Note that samples 283 - 287 contain 1 drop of 25% honey solution; this will be the standard for comparing quality of carbohydrate before and after ingestion.

Unfortunatelly, many samples are "dirty"; Raul will need to inspect them and decide if filtration is necessary. Four types of dissections were used:

- 1) legs only (to assess effect of contamination),
- 2) whole abdomen,
- 3) abdomen less crop,
- 4) crop only.

In the latter 3, tissues were gently crushed with a glass rod 3 days after the last dissections. Two days later, the solution was transferred to the HP vials with disposable Pasteur pipettes; vials were sealed and labeled immediately. The "legs only" samples were not crushed.

Analysis should include trehalose, maltose, glucose, fructose, and the identification of other sugars resulting from metabolism of the honey solution. This will be quite important for samples 143 - 222 in which crops were separated from the abdomen; metabolic products should be present in samples containing abdomens but not in those containing crops.

If your HPLC is interfaced with your HP computer, I would like the following data display: sample number, total carbohydrate, trehalose, maltose, glucose, fructose, and other sugars listed individually. If possible, I would like also a listing of ratios of maltose: glucose: fructose based on 1.000. For example, some of the ratios determined from our preliminary analysis in August were: 0.137:0.409:0.454, 0.122:0.411:0.467, 0.225:0.406:0.369. I would like to see how these ratios change over time.

Good luck with the analyses - if you have questions call me.

Sincerely,

R. J. Brenner

R. J. BRENNER
Research Entomologist

Enc.

cc: O. H. Graham ✓



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Screwworm Research
P. O. Box 986
Mission, TX 78572

Dr. Graham

SUBJECT: Meeting Attendance Plan - 1983

TO: Dr. J. R. Johnston
Area Director
P. O. Box EC
College Station, TX 77841

Meeting Itinerary

1. Southwestern Branch ESA Meeting at Corpus Christi, Texas, Feb. 21 - 23.

<u>Date</u>	<u>Departure</u>	<u>Arrival</u>
Feb. 19	Tuxtla Gutierrez, Mexico	McAllen, TX
Feb. 20	McAllen, TX Via Gov	Corpus Christi, TX
Feb. 24	Corpus Christi, TX Via Gov	McAllen, TX
Feb. 25	McAllen, TX	Tuxtla Gutierrez, Mexico

Air Trans. - \$250.00
7 days @ \$50.00/day = \$350.00
Misc. - \$50.00
Total = \$650.00

2. National Meeting of Animal Behavior Society, Lewisburg PA, June 6 - 13.

<u>Date</u>	<u>Departure</u>	<u>Arrival</u>
June 4	Tuxtla Gutierrez, Mexico	McAllen, TX
June 5	McAllen, TX	Lewisburg, PA
June 14	Lewisburg, PA	McAllen, TX
June 15	McAllen, TX	Tuxtla Gutierrez, Mexico

Air Trans. - \$550.00
12 days \$50.00/day = \$600.00
Misc.-\$50.00
Total = \$1,200.00

3. 27th Annual Livestock Insects Workshop, Las Cruces, NM, July 1983

<u>Date</u>	<u>Departure</u>	<u>Arrival</u>
Day 1	Tuxtla Gutierrez, Mexico	Cuidad Juarez Via Mexico City Crossborder to El Paso, TX
Day 2	El Paso Via Gov, Bus, etc.	Las Cruces, NM
Day 3-6	Livestock Insects Workshop	
Day 7	Las Cruces, NM	El Paso, TX
Day 8	El Paso, TX	Cuidad Juarez, Mexico to Tuxtla Gutierrez, Mexico

If traveling by Gov:

<u>Date</u>	<u>Departure</u>	<u>Arrival</u>
Day 1	Tuxtla Gutierrez, Mexico	Veracruz, Mexico
Day 2	Veracruz, Mexico	Tampico, Mexico
Day 3	Tampico, Mexico	Saltillo, Mexico
Day 4	Saltillo, Mexico	Chihuahua, Mexico
Day 5	Chihuahua, Mexico	El Paso, TX
Day 6	El Paso, TX	Las Cruces, NM
Day 7-10	Livestock Insects Workshop	
Day 11	Las Cruces, NM	El Paso, TX
Day 12	El Paso, TX	Chihuahua, Mexico
Day 13	Chihuahua, Mexico	Saltillo, Mexico
Day 14	Saltillo, Mexico	Tampico, Mexico
Day 15	Tampico, Mexico	Veracruz, Mexico
Day 16	Veracruz, Mexico	Tuxtla Gutierrez, Mexico

Air Trans. - \$246.76

8 days \$50.00/day = \$400.00

Misc. \$50.00

Total = \$700.00

By Gov:

16 days \$50.00/day = \$800.00

Misc. \$50.00

Total = \$850.00

4. National Meeting of ESA at Detroit, Michigan, Nov. 26 - Dec. 4.

<u>Date</u>	<u>Departure</u>	<u>Arrival</u>
Nov. 26	Tuxtla Gutierrez, Mexico	McAllen, TX
Nov. 27	McAllen, TX	Detroit, MI
Dec. 3	Detroit, MI	McAllen, TX
Dec. 4	McAllen, TX	Tuxtla Gutierrez, Mexico

Air Trans. - \$900.00

7 days @ \$75.00/day = \$525.00

2 days @ \$50.00/day = \$100.00

Total = \$1,225.00 (present rate)

Approx. \$1,525.00 for 1983

Meeting Attendance

Dr. Richard J. Brenner

1. National Meeting of ESA at Detroit, Michigan, will present paper.
2. Southwestern Branch ESA Meeting at Corpus Christi, TX, will present paper.
3. 27th Annual Livestock Insects Workshop, Las Cruces, NM.

Dr. Owen H. Graham

1. Southwestern Branch ESA Meeting at Corpus Christi, TX.

Dr. James W. Mackley

1. Southwestern Branch ESA Meeting at Corpus Christi, TX, will present paper.
2. 27th Annual Livestock Insects Workshop, Las Cruces, NM, will present paper and data.

Dr. Robert L. Mangan

1. National Meeting of Animal Behavior Society at Lewisburg PA, will present paper.

Dr. Richard D. Peterson

1. Southwestern Branch ESA Meeting at Corpus Christi, TX.
2. 27th Annual Livestock Insects Workshop, Las Cruces, NM.

Dr. Dennis R. Ring

1. National Meeting of ESA at Detroit, Michigan, will present paper.
2. Southwestern Branch ESA Meeting at Corpus Christi, TX, will present paper.

Dr. J. R. Johnston

4

Dr. John P. Spencer

1. Southwestern Branch ESA Meeting at Corpus Christi, TX, will present paper.

Melquiades P. Leal
Melquiades Leal
Agricultural Technician

	Plant Type			
	I	II	III	IV
Unfertilized	0.35	0.37	0.30	0.27
"N"	0.02	0.00	0.34	0.00
Draining water	16.30	17.2	0.74	0.70



United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas Area

Dr. Graham
Screwworm Research
Apartado Postal #544
Tuxtla Gutierrez, Chiapas
Mexico

December 22, 1982

William G. Hart
USDA, ARS, SR, OTA
Fruit Protection and Production Research
509 West Fourth Street
Weslaco, TX 78596

Dear Bill,

Per our telephone conversation of 17 December, I am writing this letter to describe my research interests here in Mexico and to request your assistance in remote sensing an area near Pinotepa Nacional, near Acapulco.

Data on the field bionomics of screwworms in Mexico is virtually non-existent. It is fairly certain that adult screwworms have the capability of extensive flight, and that carbohydrates serve as the primary fuel for flight. Additionally, there are several indications that mating may take place near flowers, probable sources of carbohydrates. Hence, in order to gain a better understanding of the behavior of screwworms (i.e. - dispersal and mating) I need to develop techniques whereby I can identify the source of carbohydrates found in the crop of screwworms captured in the field. Thus far, laboratory experiments designed to assess the stability of carbohydrates in the crop have been completed - data are pending. If the proportions of various carbohydrates found in the crop remain stable, or predictable, and if the proportions of carbohydrates in carbohydrate sources (e.g. - flowers, fruit) are diagnostic at the generic level, then we may be able to analyze crop contents of flies and determine which plants or fruits are serving as carbohydrate sources.

It is at this point where remote sensing is desirable. Using color infra-red aerial photography in stereo, we can classify plant communities and determine "carbohydrate availability ratios" (CAR). For example, 4 flowering plants may be present in ratios of 1:3:21:37; carbohydrate analyses of crop contents may indicate that flies imbibe carbohydrates from these plants in the ratio of 4:2:1:5, respectively. These ratios can be converted to proportions and divided, respectively, to yield "foraging ratios":

	Plant Types			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
Imbibition ratios	0.33	0.17	0.08	0.42
"CAR"	0.02	0.05	0.34	0.60
Foraging ratios	16.50	3.40	0.24	0.70

Hence, these data would indicate that flies show an aversion to types III and IV, prefer type II and show a strong preference for type I. Further studies would

be undertaken to determine if these sites may also serve as congregation sites during mating. Stereo imagery can be used to determine if flight patterns of screwworms are a function of plant communities or topography.

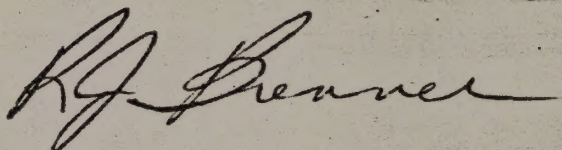
Beginning in late February, I will be conducting a field evaluation of 2 factory strains of screwworms near Pinotepa Nacional on the Pacific coastal plain. Consequently, I will have an opportunity to release and recapture large numbers of screwworms (unfed at emergence). This will be an ideal opportunity to develop this technology of carbohydrate identification.

In order to fully take advantage of this opportunity, I need to obtain color infra-red stereo imagery (60% overlap; 9"x9" final size photos) of this region by early February. I had a little experience with remote sensing in 1973-74 at the University of Illinois. I have used a Hasselblad with an 80mm lense (frame size 2.18" square edge). In fact, I have a computer printout giving scale, ground coverage, overlap coverage, image motion at the film plane, and intervals (in seconds) for stereo at 5 cruising speeds at altitudes ranging from 100 - 15,000 ft. in 100 ft. intervals. These printouts were generated for 1/500 second and 1/250 second shutter speeds. At the least, would it be possible to borrow a similar camera, lense, and intervalometer for this study?

Ideally, I would like your full participation in this project. I would like your laboratory to take these photos and to analyze plant communities (hectares per plant type per photo, proportions of plant types per hectare per photo, or other suitable indices). I will then provide the ground truth, either alone or in cooperation with your laboratory.

I have initiated efforts to obtain permits to take aerial photos of the proposed test site. At this time I would like your comments on this proposal and your recommendations as to which equipment would be best suited to meet objectives, and your thoughts as to your degree of participation in this project.

Sincerely,



R. J. BRENNER
Research Entomologist

cc: O.H. Graham ✓

This item has been digitized as a selection from the Screwworm Eradication Collection.

Digital Item Number: 01310

Format: Memorandum copy

Additional Format: map

Author: Lizandro Gonzalez

Additional Authors:

Recipient: Moises Teran
Vargas

Date: 27 December 1982

Effectiveness of Fly Attractants

Note:

Screwworm Eradication Records

Screwworm Eradication Collection

Special Collections, National Agricultural Library



United States
Department of
Agriculture

Animal and
Plant Health
Inspection Service

Subject: Effectiveness of Fly Attractants

Date: December 27, 1982

To: MVZ. MOISES VARGAS TERAN
DR. H. C. HOFMANN
ENTOMOLOGOS ASESORES

We ran a limited test in the state of Guerrero, Mexico to gather data on the effectiveness of the Swormlure in the southern regions of Mexico. Five(5) areas were surveyed within a 40-mile radius of Ciudad Altamirano, Guerrero. Only one of the five areas surveyed offered a fair degree of sufficiency in meeting our basic requirements, which included: access to distance from point of release in four(4) different directions; brushy and/or woody locales; large numbers of livestock in all directions; trap security; local cooperation. This area, where the town of Tlalchapa is located, is approximately 15 miles ENE of Ciudad Altamirano and where the test was run.

We set up twenty-four(24) fly traps, six(6) in each of the four different directions leading from Tlalchapa.* Approximate distances for the traps from the releases point in each of the four directions was one trap at 1 kilometer, two traps at 2 kilometers, and three traps at 3 kilometers. In each direction, traps on the same radius were approximately 400-500 meters apart.

On Sunday, December 12, 1982 at 09:30 hrs. we released fifty(50) boxes of flies flown in that same morning from Uruapan. The Swormlure was also flown in that morning and the traps(already set up) were baited that same day. The fly collection began the following day.

Based on limited(4 boxes) but precise counts, we obtained the data outlined below.

Total pupae:	30,375	---	607.5 per box
Total emergence:	26,250	---	524.8 per box or 86.38%
# dead at release:			5.3 per box or 1.00%
# dead after release:			5.0 per box or 0.95%
Non-emergence:			82.8 per box
Released:	50 boxes		
Group:	C		
Pupation:	1/XII/82		
Irradiation:	6/XII/82		
Packaged:	9/XII/82 P.M.		

* See Attached Map

An exhaustive public relations drive which was kept up throughout our stay in the area, as well as talks with public officials, helped put an end to the vandalism of traps which we encountered the first three days after setting them up.

The data obtained from the fly collection is outlined below.

Collection	Traps In Service	Total SW ♂	Total SW ♀	Total Others
Day 1	22	5	30	8
Day 2	21	6	14	4
Day 3	22	6	14*(1)	3
Day 4	24	2	12*(2)	1
Day 5	24	2	6*(3)	5
Day 6	24	0	0	11
Day 7	24	3*(2)	2*(1)	9
Day 8	24	0	1*	10
Day 9	24	1*	3*	3
Totals:	209	25*(3)	82*(11)	54

(*(#) Denotes wild flies)

In nine(9) days of fly collection, the total catch gave us the following:

22 sterile males	--- an average of 0.11 flies per trap
71 sterile females	--- an average of 0.34 flies per trap
3 wild males	--- an average of 0.01 flies per trap
11 wild females	--- an average of 0.05 flies per trap
wild males	--- 12.00% of the total catch
wild females	--- 13.41% of the total catch

The following data shows at what distances the screwworm flies were captured from the release point.

Perimeter One(1 kilometer from point of release)

13 sterile males	or 59.10% of total
39 sterile females	or 54.93% of total
1 wild male	or 33.33% of total
4 wild females	or 36.36% of total

Perimeter Two(2 kilometers from point of release)

8 sterile males	or 36.36% of total
30 sterile females	or 42.25% of total
2 wild males	or 66.67% of total
7 wild females	or 63.64% of total

Perimeter Three(3 kilometers from point of release)

1 sterile male	or 4.54% of total
2 sterile females	or 2.82% of total
no wild males	
no wild females	

The weather conditions remained pretty much the same throughout except for one night where the temperature dropped below 70°F. The same temperature pattern prevailed throughout our stay with low and middle 70's (Fahrenheit) in the morning and reaching the low 90's (F) in the afternoon.

The Relative Humidity would be in the middle 40's in the morning and drop down to the middle 20's by mid afternoon.

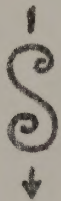
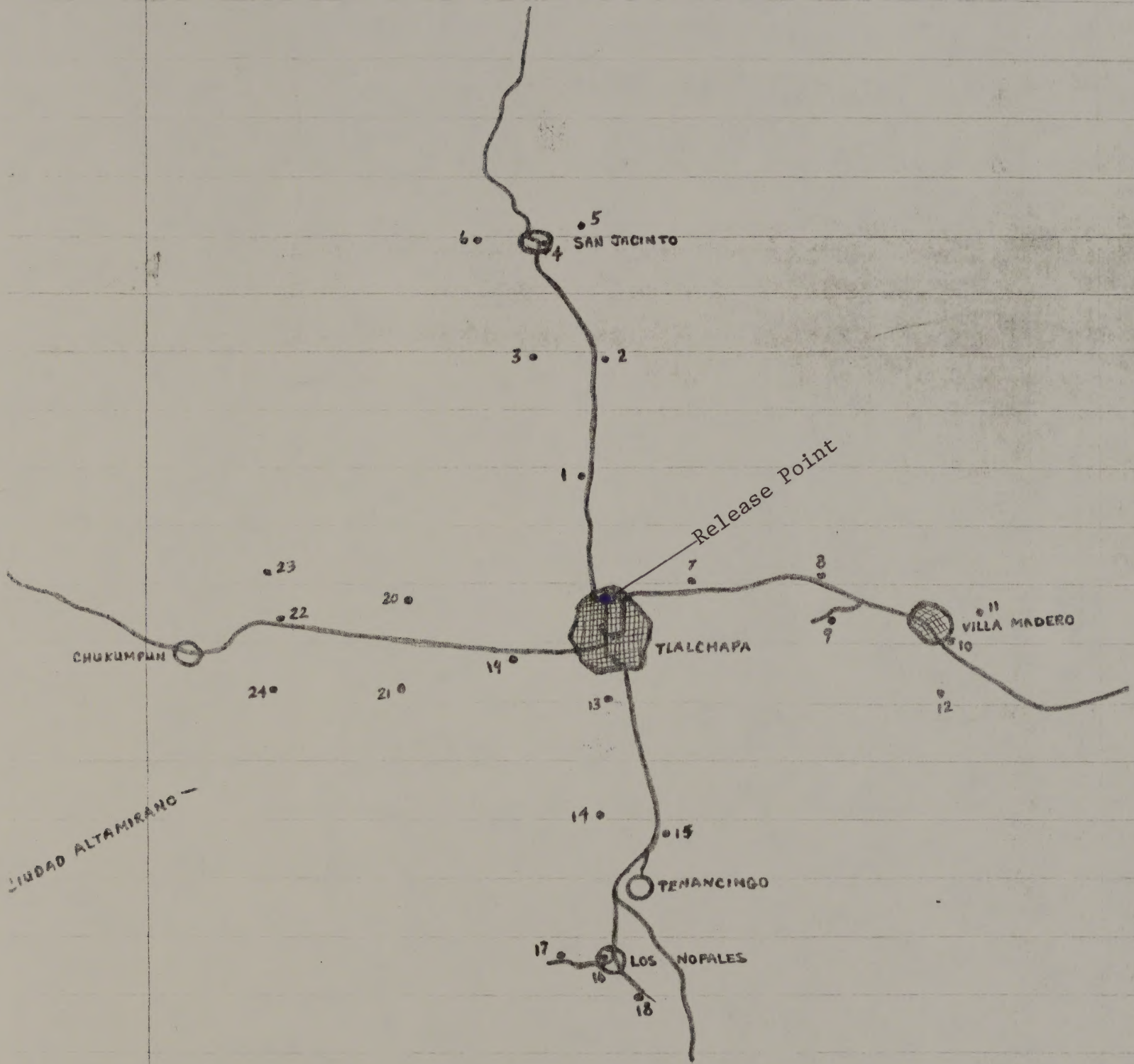
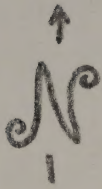
A very light breeze was constant throughout much of the 24-hour period.

At times no breeze could be felt at all.

These trials were conducted by Mr. Gerardo Guillen, a biological technician out of Guadalajara, and myself.

Lizandro Gonzalez
Biological Technician

Distribution: W. H. Sudlow; Gerardo Guillen





United States
Department of
Agriculture

Agricultural
Research
Service

Southern Region
Oklahoma-Texas
Area

Screwworm Research
Apartado Postal #544
Tuxtla Gutierrez, Chiapas
Mexico

December 30, 1982

Dr. Chris Hofmann
USDA, APHIS, Veterinary Services
Screwworm Eradication Program
Leibnitz #20 llo. Piso
11590 - Mexico D.F.
Mexico

Dear Chris,

In accordance with the telephone conversation I had with you last Monday, December 27 and your conversation with Dr. Brenner today (Dec. 30) I am requesting the following material. For my studies of larval morphology I would like to have samples of larvae identified as Cochliomyia hominivorax with copies of their collection records attached. I am mainly interested in variety and diversity of geographic areas, host animals and wound types to assess these factors and their effects on spine morphology.

When I visited Dr. Ray Gagne at the Smithsonian last November I noticed that there was no larval material and only a few adult specimens in the U.S. national collection from Mexico. In addition to my own work, selected samples will be deposited in the Smithsonian assuring that there will be adequate preserved material for study of these soon to be extinct populations.

The help of the Commission in sending me larval samples and xeroxed copies of inspector's collection forms attached individually to their collection tubes will be greatly appreciated.

Sincerely,

R. L. MANGAN
Research Entomologist

cc: O.H. Graham ✓
R.A. Bram
J.P. Spencer

